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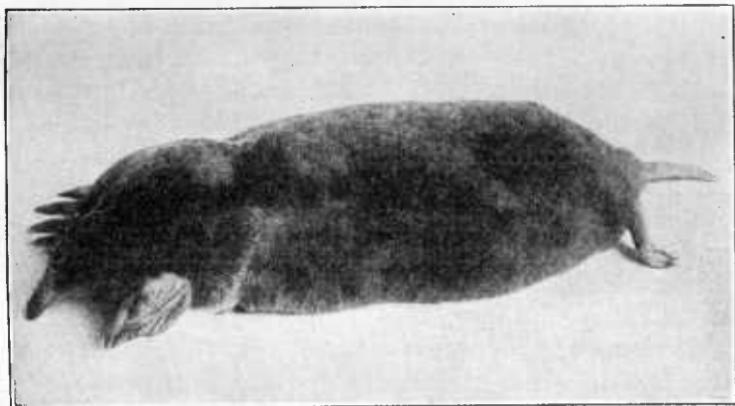
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TRAPPING MOLES AND UTILIZING THEIR SKINS

WITH ESPECIAL REFERENCE TO THE
PACIFIC COAST STATES

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Contribution from the Bureau of Biological Survey
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IN this country moles are trapped mainly because they are troublesome, but in some European countries they are trapped extensively, not only to exterminate them but also for their pelts. Millions of European moleskins have been used by fur manufacturers in this country, and hitherto have furnished the sole supply. Yet the skins of some American moles, especially the common large mole of western Washington and Oregon, are larger and have better texture than those from Europe. This fact has been recognized by some important American fur dealers, and a demand for American moleskins has lately been created.

Farmers' boys and others who may wish to trap moles will find in this bulletin information regarding the best kinds of traps, with directions where and how to set them, and how to prepare the skins. Moleskins may be sold to local furriers, or, if these skins are not handled by them, information regarding prices and methods of shipment may be obtained from fur houses that do business by mail. Also, inquiries addressed to the Department of Agriculture will receive prompt attention.

The methods of trapping moles discussed in this bulletin are especially adapted to the Pacific Coast States, but with modifications will apply to all localities where moles are found.

TRAPPING MOLES AND UTILIZING THEIR SKINS.

With Especial Reference to the Pacific Coast States.

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THE common ground mole, especially the animal found in the Pacific Coast States (fig. 1), is so destructive in many localities that measures must frequently be taken looking toward its control. Until recently the mole has been captured more with the aim of exterminating a nuisance than of utilizing its skin. In this way a by-product of trapping frequently has gone to waste when an industry might have been developed or supported which would have resulted in the production of beautiful and valuable garments or articles of adornment.

To catch the mole requires the use of specially designed traps, and to capture it for its fur requires the use of a trap that will not injure the pelt. It may be taken as easily as any other small mammal and the pelt secured may be made more than to repay the trouble and time expended in ridding a lawn, garden, or field of a nuisance.

The purpose of this bulletin is to offer suggestions on the practical means of solving the problem arising when moles become troublesome, and at the same time to encourage the development of a new industry in the utilization of moleskins. The publication deals largely with the moles of the Pacific Coast States, especially Washington and Oregon, but the suggestions given apply, with modifications, to all locations where moles are found.

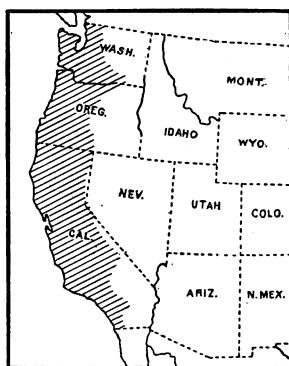
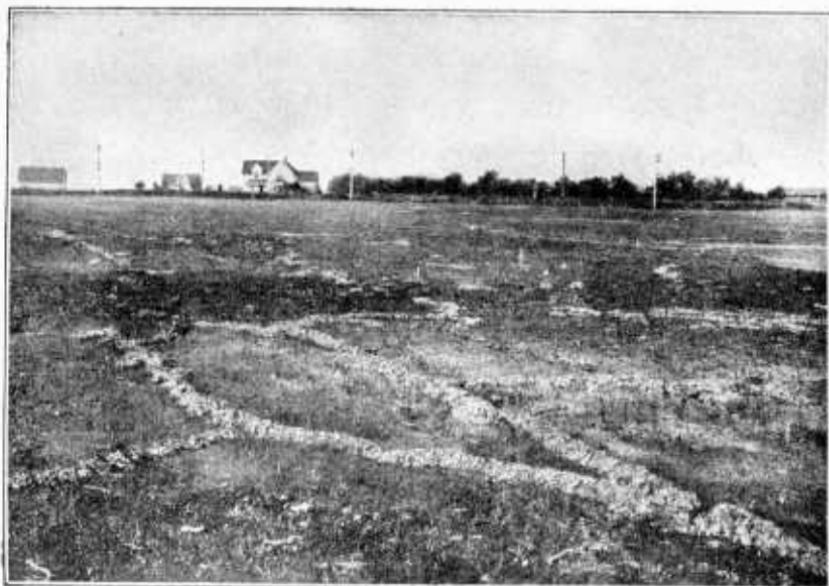


FIG. 1.—Map of western United States, the shaded portion being the section to which this bulletin is especially adapted. Moles found in Washington and Oregon are larger and darker than the southern forms, and their fur is more valuable.



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FIG. 2.—Ridges made in a field by the mole of the Northwestern States. These are so conspicuous that it is an easy matter to know where to set traps.

MOLESKINS IN THE TRADE.

Moleskin garments have been fashionable in this country, particularly in the larger eastern cities, for several years and fur dealers consider it probable that undressed mole pelts will continue indefinitely to have a marketable value, the value fluctuating, of course, with the demands of fashion. In England, Scotland, and some of the continental coast countries moles are trapped extensively both for their pelts and for the private bounties paid for their extermination on certain estates. The sole source of supply of moleskins for use by manufacturing furriers of this country hitherto has been the pelts of the European mole, obtained through importations from London. In a period when moleskin garments are in fashion the volume of business in furs of this class will reach two or three million dollars annually.

AMERICAN MOLESKINS.

The Biological Survey has found that the skins of certain American moles are of much greater value for the furrier's purposes than those of the European species. They should therefore be classed by themselves. This applies particularly to the skins of the common large mole of western Washington and Oregon,¹ which are larger and have better texture and fur than those of Europe.² Since this fact has

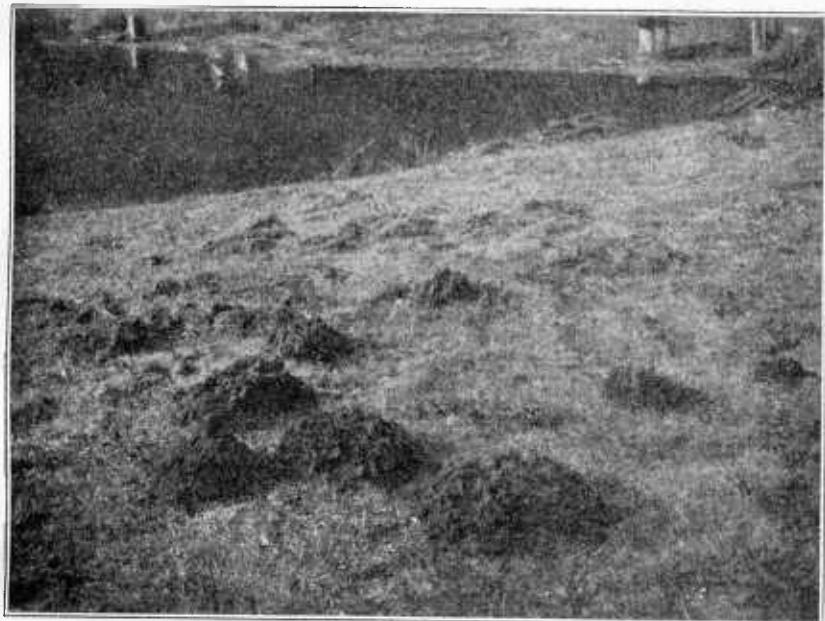
¹ *Scapanus townsendii* and other species.

² *Talpa europaea*.

been recognized by a number of the more important fur dealers a demand for American moleskins at prices remunerative to the trapper has developed. Bulk orders for immediate delivery, however, could not be filled, inasmuch as it has not been generally known that moleskins had or were to have a market value.

WHERE TO TRAP.

The mole is not adept at concealing evidences of its presence in lawns, gardens, or fields. Telltale ridges or conspicuous mounds of earth plainly indicate the runways. The ridges (fig. 2) show the direction and course of the animal's hunting paths, which are so close to the surface that the sod or the soil crust is upraised. The mounds (fig. 3) indicate deeper tunneling; for they are formed of earth pushed up from lower workings, where the soil is too compact to be simply crowded aside. Such mounds thickly dot the mole-infested areas of the Pacific coast country (fig. 4), but are of much rarer occurrence in the habitat of the eastern mole. The mounds of the Townsend and other moles of the Northwest resemble superficially the earth heaps thrown up by pocket gophers, but they can be distinguished from the latter by casual inspection. The mole



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FIG. 3.—Mounds made by the mole of the Northwestern States. These resemble superficially heaps thrown up by pocket gophers, but they are more symmetrical and are built up, volcano fashion, by successive upheavals from beneath and through the center of the pile. Soil in compact little masses rolls down the sides from the summit.

heaps are the more symmetrical and are built up, volcano fashion, by successive upheavals beneath and through the center of the pile, the soil, in compact little masses, rolling down the sides from the summit (see fig. 3). The pocket gopher, on the other hand, brings up the soil excavated in its workings and dumps it on the surface in armfuls, thus forming low, semicircular or fan-shaped accumulations of fine dirt more or less to one side of the burrow exit.

Many of the deeper runs of the mole are highways of common traffic, used often by a number of individuals and frequented also by shrews and certain species of field mice. Good catches usually may



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FIG. 4.—Mounds such as are shown in figure 3 thickly dot the mole-infested areas of the Pacific coast region of Washington and Oregon. They are not usually found in areas frequented by the eastern mole.

be expected from continued use of the trap in these highways, which commonly follow fences, hedges, walks, plant rows, and the ridges of open fields. Such situations are the more frequented by the mole because they offer some concealment or shelter and are less often disturbed by the activities of man. It is especially desirable to trap in such places when one wishes to avoid, in the operation, the disfigurement of lawns and garden beds infested by moles that have come in from the main runways.

It will pay to set traps on ridges over temporary hunting paths only when these have been constructed recently in damp soil, or, at least, have not become so dry that the mole no longer finds profit in

following them in search of food. Since the ridges usually have many turns and windings, it is well to set the traps on a part of the path that takes a straight course.

It is seldom worth while to set mole traps in a dry place. The animal delights to work in a moist, rich soil, for there the digging is easy and there its food abounds. Then, too, a satisfactory adjustment of the working parts of a trap can not be made in dry dirt. The more recent the signs of mole activity at any particular spot the better the chances for successful trapping. It will pay to run the traps twice a day, morning and evening. In the summer season they should be visited also in the middle of the day, for the hair soon becomes loose on a mole pelt in even moderately warm weather.

WHEN TO TRAP.

Trapping moles in the Pacific coast country may be followed successfully at any season of the year and at any time when weather conditions will permit. In the Eastern States the work will be more or less hindered in winter by snows and by severe freezing weather. Moles are active all winter, however, and frequently have been caught along grass-grown fence rows and in the deeper runways of open fields when the ground was frozen so hard as to necessitate the use of a pick in setting traps.

The fur of the mole is perhaps at its best in the winter season, but it is classed as prime in midsummer also. Less seasonal variation is found in the pelage condition of this burrowing mammal than in that of the fur-bearing animals that live mainly aboveground. Nevertheless, during the molting periods in spring and fall there is a deterioration in the value of the mole's fur. In the Puget Sound region most individuals among the common moles undergo the fall molt in October and early in November. The spring pelage change is less marked and is more irregular in its occurrence, the times of molting varying with individuals, sex, and weather conditions. In a collection of more than 600 skins of the common mole, taken in western Washington in all weeks of the year, the percentages of prime skins for the several months ran as follows:

TABLE 1.—*Percentages of prime skins of moles taken in different months.*

Month.	Prime skins.	Month.	Prime skins.	Month.	Prime skins.
	Per cent.		Per cent.		Per cent.
January.....	100	May.....	80	September.....	65
February.....	75	June.....	90	October.....	10
March.....	75	July.....	80	November.....	15
April.....	50	August.....	95	December.....	95

The basis of classification in determining these percentages was the appearance of the leather side of the dried pelt—clear tan color for the prime skins and spotted or blotched with bluish black for those not prime. Moleskins are mainly thus graded by fur buyers, although, of course, the size of the pelt and the care with which it has been handled will partly determine its value. Skins are considered marketable no matter at what season of the year they are taken, but clear, prime pelts command the better prices.

MOLE TRAPS.

In Europe a great many moles are taken by means of homemade snaring devices. The trappers there also make use of both wooden and metal traps that are cheap and of simple construction. All types of mole traps in common use in America are made of metal and depend for their operation on the same sort of tripping device—a trigger pan designed to rest on an obstruction produced in the mole's runway when the trap is set. The trap is sprung when the mole follows its natural instinct to reopen the run by burrowing through or upheaving the obstruction. The entire mechanism of such traps

is aboveground or concealed in the loose soil, no part being within the runway proper. It is a waste of time to try to catch moles with ordinary steel traps, rat traps, gopher traps, or like devices, for the animal almost invariably burrows under anything thus introduced into its runs.

The catching and killing mechanisms of American mole traps are of three types: (1) Choker loops, (2) gripping or scissor jaws, and (3) impaling spikes. Several different makes of the impaling or harpoon trap are on sale, particularly in the East and Middle West. In actual use, however, they are the least efficient of the three types. They are large, clumsy devices, record a low percentage of catch, and have the additional disadvantage of injuring the skins of moles that are trapped for their fur. The other two types are illustrated in figures 7 and 8.

HOW TO SET TRAPS.

No better tool for use in setting mole traps can be found than a good, strong garden trowel, such as is illustrated in figure 5. Make the break or opening into the burrow no larger than is necessary to accommodate the trap; otherwise the mole may deviate from the original course and pass through without being caught. Even when placing the trap on one of the shallow hunting paths, it will pay to dig into the runway and adapt the setting to known conditions,



FIG. 5.—A good, strong garden trowel is the best tool for use in setting mole traps.

rather than to set from the surface by simply forcing the loops or the jaws into the soil. Sometimes, also, in digging, three or four forks of the burrow are discovered, and there is nothing to do then but fill the break and try elsewhere. So far as the writer's observation goes, no importance should be attached to the admonition sometimes heard to disturb the mole's runway as little as possible when setting the trap and to use gloves in the operation, lest the animal get the scent of human hands.

The location of one of the shallow hunting paths of the mole is indicated plainly by the surface ridges. To find a deep runway from which a mound of earth has been pushed out, clear away the latter and feel or prod for the short passageway running obliquely down to the main tunnel. (See fig. 6.) Follow its course, usually only a few inches, and place the trap on the main run.

Scissor-jaw traps.—To get the best results with the scissor-jaw trap (fig. 7) the soil in which the setting is made must first be loosened with the trowel and freed from sticks, clods, or pebbles. The jaws of this trap must close in the soil and will, of course, act the more quickly the less they are obstructed. Make the excavation for the

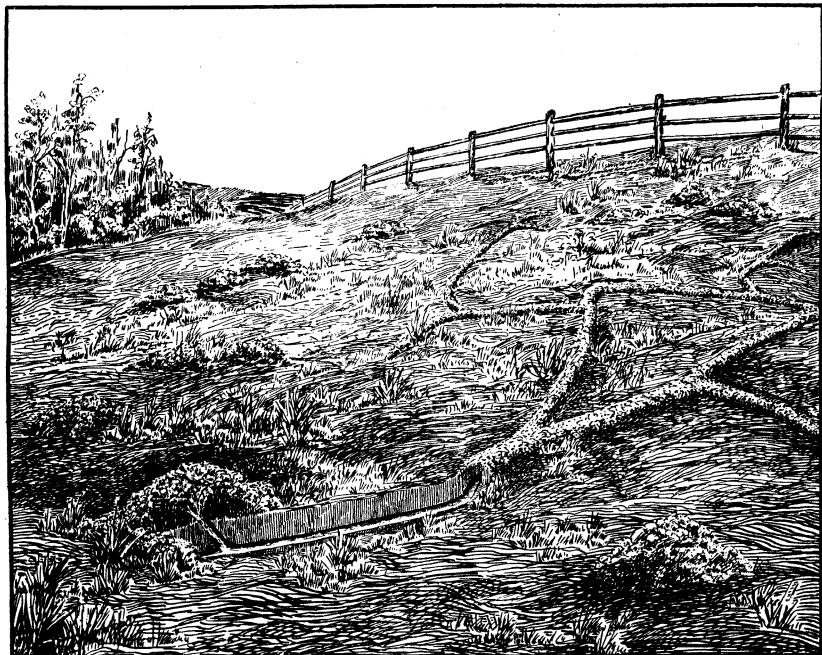


FIG. 6.—Mounds and ridges of earth similar to those shown in figures 2 to 4. A sectional view of part of deeper runway connected with mound and with subsurface hunting path is shown. Traps give best results when on these main tunnels.

trap a little deeper than the level of the bottom of the runway, for the tendency of a mole is to pass under rather than to one side of a break or obstruction in its burrow. Having definitely located the course of the runway, fill in enough loose earth to hide and obstruct the passage, and settle the trap snugly into place, the jaws straddling the course. Tap the trigger pan down with the end of the trowel handle and lastly, release the safety hook that holds together the bows of the trap. Do not pack the earth in the excavation nor fill in dirt higher than the top of the jaws.

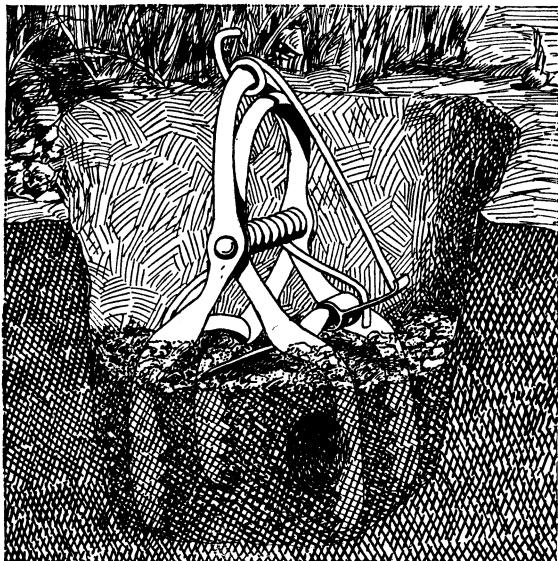


FIG. 7.—Scissor-jaw, or gripping-jaw trap. Phantom view, showing its position in relation to a deeper runway of the mole. Soil must be loosened with trowel and freed from obstructions, as sticks, stones, or clods, in order that the trap may act quickly. The jaws must straddle the course of the runway.

Choker-loop traps.—In setting the choker-loop trap (fig. 8) less attention need be given the matter of getting the soil fine and loose. The loops may be firmly forced into the ground with the certainty that they will react promptly when the trap is sprung. Traps of this type will also stand up to the work better than the other when used in heavy clay or gravelly soils.

When placed in position on a mole runway the loops should encircle its course and reach a little deeper than the level of the bottom of the run. Before setting the trap in the place prepared for it fill in enough loose earth to come up against the frame. A convenient way of getting the trap into position is to hold the end of the trigger wire down with the left thumb, the fingers grasping the spring arm. Then with the free right hand compress the damp soil beneath the trigger pan, or place a little piece of sod under it, so that the two will be in snug contact when the setting is completed.

SKINNING MOLES AND HANDLING THE PELTS.

The process of skinning a mole is very simple and with a little practice one should be able to put eight or ten pelts an hour on the drying boards. The skin envelops the body of the animal rather loosely,

and in the larger species is so tough that there is little danger of tearing it with ordinary handling. The best tool for the work is a small, strong pair of scissors about 4 or 5 inches long (fig. 9), with one blunt-pointed and one sharp-pointed blade. A scalpel (fig. 10) or a sharp-pointed pocket knife may be substituted for the scissors.

Proceed as follows: With scissors or knife make a slit in the skin down the middle of the belly from chin to root of tail, taking care not to cut through into the abdominal cavity. Now, with thumb and fingers loosen up the skin on the hind quarters and turn it wrong side out down to the ankles and the root of the tail. Snip off legs and tail at the points mentioned, without cutting the pelt. Grasping the body with one hand and the skin with the other, continue the process of turning the latter wrong side out until the wrists are reached. Sever the arms at these points as was done with the legs at the ankles. This process may require a heavier pair of scissors, however, for the bones are thick and strong. After a little snipping at the connective tissue about neck and head, the skin can be pulled over the nose and off the body entirely.

STRETCHING AND DRYING.

When the skin is off, pick from it any bits of fat that have adhered and snip off the dangling legs and tail in such way as to leave the smallest possible hole in the skin. Now pin the skin out on a board

to dry, fur side down, first tacking the four corners, then using four, and finally eight more intermediate pins, as shown in figure 11. A light tack-hammer will serve to drive the pins, and a pair of forceps with corrugated tips to help in the stretching.

Hang the drying boards where the air circulates freely, but not in the sunshine. In a few days or at most in two or three weeks, depending upon the humidity of the atmosphere, the skins will be

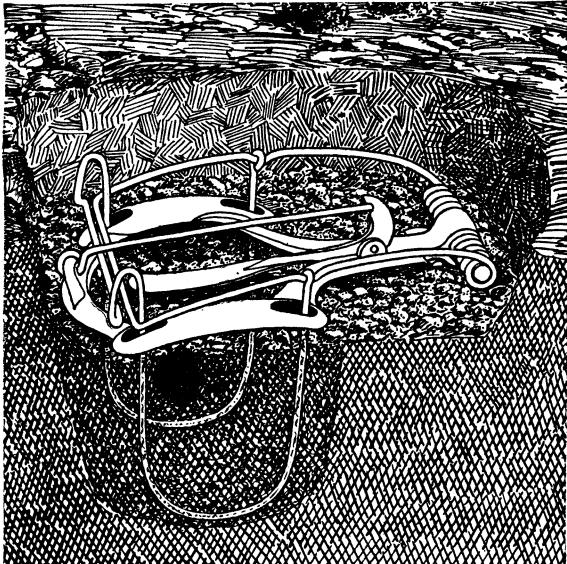


FIG. 8.—Choker-loop trap. Phantom view, showing trap placed in position on one of the deeper runways of a mole's system of burrows. The loops should encircle the runway.

as dry as parchment and may be stored away indefinitely. They need no treatment with preservatives of any sort, but must be kept in a cool, dry place safe from insects and mice.

English moleskins are stretched on drying boards in rectangular form, four pins only being used. In this shape they do not dry so well at the edges, however, nor do they show to the best advantage when marketed. Cased moleskins, that is, those removed without being slit down the belly, are harder to grade than those handled flat. For this reason they are likely to bring lower prices. It seems

worth while, also, to standardize the method of handling American moleskins described above so that they may be distinguished readily from the European skins.

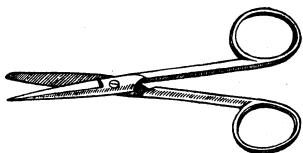


FIG. 9.—Scissors with one blunt and one sharp point, suitable for use in skinning moles. These should be strong, as the bones of arms and legs must be cut with them.

reliable fur dealer. If local furriers do not handle this class of skins information concerning current prices and methods of shipping may be obtained by writing to establishments doing business by mail. Inquiries in matters of this sort addressed to the Bureau of Biological Survey, Washington, D. C., will receive prompt attention.

TANNING.

If it is desired to make up the skins at home into articles of apparel, the following method of tanning them will be found very satisfactory:

For a tanning liquor, add to each gallon of water one quart of salt and one-half ounce of sulphuric acid. This mixture should not be kept in a metal container. Moleskins need not remain in the liquor more than one day, although no harm will be done if they are kept there indefinitely.

When removed from this liquor the skins are washed several times in soapy water, wrung as dry as possible, and rubbed on the flesh side with a cake of hard soap. They are then folded in the middle over a line, hair side out, and left to dry. When both surfaces are barely dry and the interior is still moist they are laid over a smooth, rounded board and scraped on the flesh side with the edge of a worn, flat file or a similar blunt-edged tool. In this way an inner layer is removed and the skins become nearly white in color. They are then stretched, rubbed, and twisted until quite dry.



FIG. 10.—A scalpel, or even an ordinary pocket knife, if kept sharp, will serve the same purpose as scissors in skinning moles.

MATCHING SKINS.

When matching skins in a piece the best appearance is produced by arranging them so that the fur of no two adjacent skins strokes in the same direction.

The great bulk of the moleskins supplied to manufacturing furriers in this country are dressed and dyed ("blended" or "tipped") by special processes involving the use of machinery. Most of this work is done in a few establishments in New York City, Brooklyn, and, more recently, St. Louis. The leather side of the pelt is commonly dyed to prevent its light color from showing at the seams in a gar-

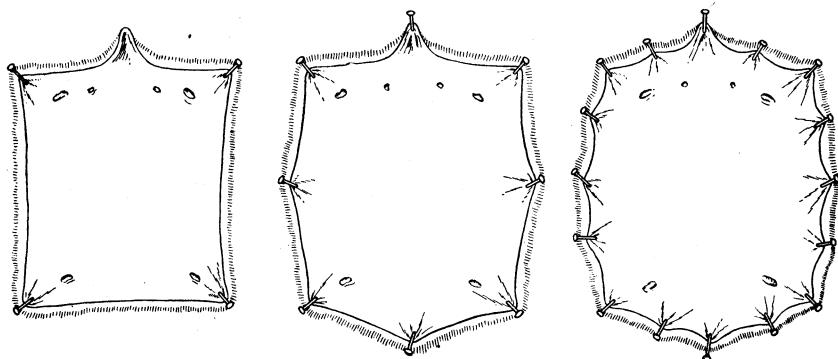


FIG. 11.—Drying skins on a board, showing the three stages of work on one skin: (1) Four pins are first used, one in each corner; (2) four intermediate pins are then inserted, the skin being slightly stretched; (3) finally eight more pins are tacked in, one between each two of those already in place. A light tack-hammer will serve for driving the pins.

ment or where the fur may chance to part. This process, it is claimed, does not affect the color of the fur itself, which may be subjected to another bath in a dye to secure a uniform shade in all the skins.

MOLESKIN GARMENTS.

The best grades of skins are not always dyed and very pretty fur pieces may be made up at home or by a local furrier without any blending, provided one has skins enough from which to make satisfactory selection. From a dozen to twenty skins of the common mole of the northwest coast are sufficient to make an average-sized neck piece for ladies' wear. Twenty skins will make a muff of average size, and 30 skins a large one. At least double these numbers of skins of eastern moles will be required for the same purposes. The moleskin cloaks displayed in shop windows usually contain four to six hundred pelts of the European mole, depending upon the length of the garment. Not more than two-thirds as many skins of the Townsend mole would be needed for such cloaks.

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